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ABSTRACT

Information contained in this report concerns the sample survey design, survey operation, and estimation procedures applied to assess the use of the educational television series, "The Electric Company," in classroom instruction in 1976-77. The survey was national in scope, with schools being selected from sample schools appearing in a similar survey conducted in 1972-73. Survey results summarized include: (1) reliability and validity of the findings; (2) school adoption levels; (3) school adoption by grade levels by pupils; and (4) television viewing in schools, 1976-77. Extensive data tables are provided, as well as the School Questionnaire. (Author/STS)

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Project Report
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Final Report

A Survey of the Use of *The Electric Company* For Classroom Instruction, 1976-1977

Submitted to:
Children's Television Workshop
1 Lincoln Plaza
New York, New York 10023

August 31, 1977

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RESEARCH TRIANGLE PARK, NORTH CAROLINA 27709

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I. INTRODUCTION

Information contained in this report concerns the sample survey design, survey operation and estimation procedures applied to assess the use of the educational television series, *The Electric Company* (TEC), in classroom instruction in 1976-77. The survey was national in scope; schools being selected from sample schools appearing in a similar survey conducted in 1972-73.

The survey was undertaken by the Research Triangle Institute, Box 12194, Research Triangle Park, North Carolina 27709. Many people at RTI were involved with the planning and conduct of the survey. The survey was managed by the Sampling Research and Design Center, (SRDC) with the support of the Survey Operations Center (SOC). The project leader was Dr. A. W. Sherdon, senior statistician in SRDC. Ms. J. C. Greenblatt, statistician, developed the computer controlled mailing and receipt system as well as the computer software for the analysis of the data. The operational aspects of the mail and telephone surveys, data coding and quality control were done by Mr. Don King, senior survey specialist in SOC, Ms. Mary Artz and Ms. Vivian Adkins, survey assistants with the aid of many other research assistants and statistical clerks.

II. SURVEY DESIGN

A. Background

The sample of schools selected for this study is a subsample of schools selected for the 1972-73 surveys of the use of *The Electric Company*. Currently, specification of the 1976-77 sample design and other procedures include features of the earlier work. In order for this report to be complete in itself, information from the earlier contract is incorporated as required in the following sections.

B. Definition of the Target Population

Computer accessible lists (Elementary and Secondary General Information Survey, obtained through The Office of Education) of public and private schools in the nation and possessions in 1970-71 provided the basic information from which the sampling frame was constructed. Concomitant data on these lists included abbreviated mailing addresses and enrollment data by grade category including ungraded and special education enrollment. Permanent input/output errors on the magnetic tapes for public schools resulted in a no information situation in the states of Maine, New Jersey, West Virginia, Wyoming and Wisconsin. Since insufficient time was available in which to obtain new copies of the tapes, the list of schools in these states was supplemented from the sampling frame constructed for use in the 1970-71 CTW surveys. (See Technical Report, Children's Television Workshop Survey 1971-72, RTI Project Report, July 1972.)

A similar problem occurred on the private school list. In this case, only two complete blocks on the tape could not be read, involving a total of 20 private schools. Because of the location of the faulty blocks, the identity of the schools with respect to state(s) could

not be determined with certainty, and these schools were omitted from further consideration.

A separate tape file was constructed containing, so far as was possible, only those schools having at least one of grades 2, 3, or 4. Specifically included were schools with at least one of these grades, schools for which no enrollment data were available, and schools with elementary ungraded and elementary handicapped pupils.

The resulting list of schools was checked against lists prepared for the 1971-72 school year in conjunction with other RTI studies. Those lists had been prepared from on-site data collection procedures for a national area sample. Estimates made from the area sample data of the number of schools having the target grades agreed well with the number of schools on the restricted list, allowing for frame inefficiencies arising from the inclusion in the list of schools having no enrollment data.

Since the 1976-77 survey was conducted on a subsample of the 1972-73 sample, schools opened since the 1970-71 school year are not included. The inferences drawn from this survey are therefore biased with respect to the 1976-77 population of schools.

C. Stratification of the Sampling Frame

Five dimensions of stratification were imposed on the sampling frame, creating 64 major strata and 481 minor strata. The first of these divided the list of schools into four geographic regions, based upon the state in which the school was located, as described in Table 1. Population characteristics of the county in which the school was

located were used to define a size of community dimension of stratification at four levels as shown in Table 2. A third dimension of stratification used the relative annual income level of counties, to classify schools according to the relative socio-economic level of the county. The definitions employed are given in Table 3. These three levels of stratification provide the 64 major strata. Stratification variables are defined in terms of 1970 (census) data.

A fourth dimension of stratification was imposed based on the size of the school, as measured by the 1970-71 enrollment data used to determine the eligibility of the school to appear in the frame (as described in the previous section). Public schools were arrayed by enrollment, from greatest to least, and ten strata were formed such that the total schools in the region by size of community by socio-economic stratum cells were divided into the following proportions.

Size Stratum	1	2	3	4	5	6	7	8	9	10
Proportion	.025	.05	.05	.1	.1	.2	.2	.1	.1	.075

Schools with no enrollment data were arbitrarily placed in size stratum 10.

Because of the smaller number of private schools, ten size strata could not be formed in most of the region by size of community by socio-economic stratum cells. In this case, a variable number of approximately equally sized strata were formed.

In total, 481 separate cells were formed from the cross classification of all the dimensions of stratification. The total number of target schools in each of the stratum cells, defined down to the region by size of community by socio-economic level, are shown in Table 4.

Note that since the procedure outlined above was undertaken separately for public and private schools, this categorization provides the fifth dimension of stratification.

D. Selection of Sample Schools

The total sample size of 15,125 schools chosen for the 1972-73 survey was distributed proportionately to the number of schools in the region by size of community by socio-economic stratum cells, with the restriction that the same number of sample schools be allocated to each of the size strata that had been formed within the region by size of community by socio-economic cells. The number of sample schools so determined was then selected with equal probability and without replacement from each of the 481 strata. The distribution of the sample is shown in Table 4.

Schools for the 1976-77 survey were chosen as a subsample from the 15,125 sample schools in the 1972-73 survey. The total sample size of 2602 schools was distributed proportionately to the number of schools in the 64 major strata of region by size of community by socio-economic status. Sample schools were selected in each major stratum with equal probability and without replacement with the restriction that each major stratum contain at least two schools. The sample was post-stratified by minor stratum size, based on the size of the school to improve the sampling precision.

A sample of non-respondents to the two mailings was selected and responses obtained by telephone. Non-response samples were allocated proportionately to the relative size of the non-responding fraction in each of the 64 major strata, with the restriction that each stratum having a non-zero fraction have at least one school selected.

The non-response sample of schools was selected with equal probability and without replacement from the total non-responding schools in each major stratum. The sample was post-stratified by minor size strata. Six hundred and seventy three telephone calls were attempted. The results of the telephone survey are as follows:

Completed:	508
School Closed or Unable to Contact:	78
Refused to Answer:	21
Received in Mail*:	41
Received in Mail after Telephone Call:	5
Non Respondents:	20
	673

The distribution of the completed calls by major stratum is shown in Table 4. The response rate to the telephoned subsample of mail nonrespondents is 93%, which rate limits any opportunity for nonresponse biases to seriously influence the survey results.

*These questionnaires are considered as responses to the mail survey. The telephone response rate is therefore 591/632 = .935.

Table 1
DEFINITION OF REGION STRATA

1. North Atlantic

Connecticut
Delaware
District of Columbia
Maine
Maryland
Massachusetts
New Hampshire
New Jersey
New York
Pennsylvania
Rhode Island
Vermont

2. Southeast

Alabama
Arkansas
Florida
Georgia
Kentucky
Louisiana
Mississippi
North Carolina
South Carolina
Tennessee
Virginia
West Virginia

3. Great Lakes and Plains

Illinois
Indiana
Iowa
Kansas
Michigan
Minnesota
Missouri
Nebraska
North Dakota
Ohio
South Dakota
Wisconsin

4. West and Southwest

Alaska
Arizona
California
Colorado
Hawaii
Idaho
Montana
Nevada
New Mexico
Oklahoma
Oregon
Texas
Utah
Washington
Wyoming

Table 2

DEFINITION OF SIZE OF COMMUNITY STRATA

1. All counties containing a central city with a 1970 population of 180,000 or greater.
2. All other counties in the same standard Metropolitan Statistical Area (SMSA) with a Size of Community (SOC) 1 county.
3. All counties not in SOC 1 or SOC 2 but containing at least one city of 25,000 or more in 1970. All SMSA counties not in SOC 1 or SOC 2.
4. All counties not in SOC 1, SOC 2 or SOC 3.

Table 3

DEFINITION OF SOCIO-ECONOMIC STATUS

1. Those counties having the largest proportion of individuals whose annual income is less than $3000; the total population of these counties to be (about) 25% of the total population of the Region by SOC stratum (low SES).
2. All other counties in the Region by SOC stratum.

Note that these definitions imply a variable proportion of individuals with income less than $3000. For example, in the Northeast Region, SOC 2, low SES counties are those in which 11.2% or more of the individuals have income less than $3000. In the rural Southeast, the percentage is 56.2%.

III. SURVEY OPERATIONS

A. Data Collection Procedures

All data collection activities were initiated during the spring of 1977. The first mailing of the questionnaire to the 2602 sample schools was completed by March 11. On March 18, 2602 prompting/thank you postcards were mailed to sample schools.

The address file was updated to show responding schools and schools for which the questionnaire was undeliverable. Labels were printed for the nonresponding schools and the second questionnaire mailed by March 31. Table 4 shows the results of the two mailings.

On April 18, a telephone sample of 673 nonresponding schools was selected proportional to the relative size of the nonresponding fraction in each of the 64 major strata. At least one school was chosen from each major stratum.

Computer software controlling direct data entry was completed by April 22 to enable operators to enter the data received on the questionnaires. Questionnaires were edited for satisfactory completion of key items, consistency and readability. Two hundred questionnaires that failed the edit procedures were given to RTI telephone operators who contacted the schools.

Telephone calls to the 200 fail-edit schools and to the 673 schools in the telephone sample were completed by the end of May. The results of the telephone and mail surveys are shown by major strata in Table 4. The response rate for the first mail survey was 26.0%, for the second mail survey 25.9%, for the telephone survey, 93.9%. The overall response rate was 67.9%

Table 4

DISTRIBUTION OF SCHOOLS AND SAMPLE SIZES BY REGION. SIZE OF COMMUNITY, AND RELATIVE SOCIO-ECONOMIC STATUS

Region	SOC	SES	Total Schools Grades 2,3,4	1972-73 Sample Size	1976-77 Sample Size	1976-77 Telephone Sample Size	1976-77 1st Mail Response	1976-77 2nd Mail Response	1976-77 Telephone Response
1	1	1	166	30	5	2	1	0	2
1	1	2	2,300	440	76	20	20	14	13
1	2	1	1,091	200	34	11	4	4	10
1	2	2	2,565	490	84	26	18	10	22
1	3	1	1,483	280	48	11	14	9	10
1	3	2	3,556	680	117	29	26	28	26
1	4	1	824	150	26	8	5	4	8
1	4	2	1,982	380	65	14	23	15	13
2	1	1	358	60	10	3	3	1	3
2	1	2	1,169	220	38	8	10	12	7
2	2	1	257	40	7	1	4	2	1
2	2	2	565	100	17	3	4	8	3
2	3	1	1,060	200	34	9	9	5	7
2	3	2	2,950	560	96	26	23	21	21
2	4	1	2,074	390	67	22	6	13	20
2	4	2	5,284	1,010	174	41	58	28	36
3	1	1	1,169	220	38	13	7	4	11
3	1	2	3,222	610	106	28	28	15	25
3	2	1	744	140	24	7	4	3	6
3	2	2	1,945	370	64	15	17	16	14
3	3	1	1,370	260	45	11	9	10	11
3	3	2	3,371	640	110	29	35	10	28
3	4	1	3,300	630	108	26	33	19	26
3	4	2	6,557	1,260	217	51	59	51	45
4	1	1	1,176	220	038	10	12	5	10
4	1	2	3,469	660	113	31	21	30	27
4	2	1	318	60	010	03	3	0	2
4	2	2	913	170	029	08	5	7	8
4	3	1	1,140	210	036	10	7	7	10
4	3	2	3,052	580	100	29	22	18	23
4	4	1	1,273	240	041	11	12	4	9
4	4	2	4,033	770	132	35	38	16	32
5	1	1	411	75	013	02	7	3	1
5	1	2	1,296	240	041	11	9	7	11
5	2	1	259	48	008	02	1	3	1
5	2	2	904	170	029	07	8	6	6

Table 4
DISTRIBUTION OF SCHOOLS AND SAMPLE SIZES BY REGION,
SIZE OF COMMUNITY, AND RELATIVE SOCIO-ECONOMIC STATUS
(Conintued)

Region	SOC	SES	Total Schools Grades 2,3,4	1972-73 Sample Size	1976-77 Sample Size	1976-77 Telephone Sample Size	1976-77 1st Mail Response	1976-77 2nd Mail Response	1976-77 Telephone Response
5	3	1	428	80	014	02	7	3	2
5	3	2	1,250	240	041	11	6	11	8
5	4	1	90	17	003	01	0	1	1
5	4	2	397	75	013	01	7	3	0
6	1	1	199	38	007	01	4	2	0
6	1	2	379	70	012	4	2	3	4
6	2	1	38	7	002	01	0	1	0
6	2	2	180	34	006	01	4	0	1
6	3	1	233	42	007	03	0	2	2
6	3	2	497	90	015	03	3	6	3
6	4	1	236	45	008	03	1	1	3
6	4	2	419	80	014	05	1	2	4
7	1	1	512	96	017	06	2	2	5
7	1	2	1,295	240	041	09	12	12	8
7	2	1	151	28	005	02	0	0	2
7	2	2	471	90	015	03	5	3	3
7	3	1	277	51	009	02	4	1	2
7	3	2	872	160	027	05	7	9	5
7	4	1	536	98	017	03	9	2	2
7	4	2	1,223	230	040	10	11	8	10
8	1	1	358	68	012	04	3	2	4
8	1	2	1,064	200	034	08	11	8	6
8	2	1	22	4	002	01	1	0	1
8	2	2	181	34	006	02	1	3	1
8	3	1	135	24	004	01	1	1	1
8	3	2	544	98	017	04	7	2	2
8	4	1	102	19	003	01	0	2	0
8	4	2	334	64	011	03	3	1	3
Totals			80,029	15,125	2,602	673	677	499	591

IV. ESTIMATION PROCEDURES

Estimating quantities of interest to the survey, such as totals or proportions, was complicated by the large non-response to the mail survey and by the failure to answer one or more questions on an otherwise usable questionnaire. Separate estimates were made for the non-respnding population of schools from the telephone survey data separately for each major stratum.

The analysis procedure outlined in this section also adjusted for inefficiencies in the frame resulting from the inclusion of some schools not having at least one of grades, 1, 2, 3, 4, 5, or 6, schools that had closed since the earlier survey and other schools listed in the frame which were not members of the target population.

The material that follows describes the formulation of the estimation of totals, such as the total number of schools viewing *The Electric Company*. Estimates of other quantities follow from the formulations of totals. For example, the proportion of schools viewing *The Electric Company* involves the estimated total viewing schools divided by the estimated total number of schools.

Similarly estimates of proportions for specified subsets of schools (domains of interest) were obtained by separately estimating the appropriate totals for the numerators and the denominators, and then dividing.

Totals and their associated variances were estimated separately for each major stratum. These were in turn summed to produce national or other estimates. Hence, the formulations that follow are for a major stratum.

A. Estimates of Totals

Consider that the population of schools can be arrayed in two dimensions as follows:

I=1, 2, ..., 64
Major Strata

Minor Strata					
J=1	1,1	2,1	...	64,1
2	1,2	2,2	...	64,2
.	...	...	...	...
.	...	...	...	...
.	...	...	...	...
H_i	$1,H_i$	$2,H_i$	...	$64,H_i$

Notation:

N_{ij} is the number of schools in the $(i,j)^{th}$ stratum $i = 1, 2, \ldots, 64$ and $j = 1, 2, \ldots, H_i$.

n_{ij} is the number of schools in the $(i,j)^{th}$ stratum in the 1972-73 survey.

m_{ij} is the number of schools in the $(i,j)^{th}$ stratum in the 1977 survey.

$$N_{i.} = \sum_{j=1}^{H_i} N_{ij} \qquad i = 1, 2, \ldots, 64$$

$$n_{i.} = \sum_{j=1}^{H_i} n_{ij} \qquad i = 1, 2, \ldots, 64$$

$$m_{i.} = \sum_{j=1}^{h_i} m_{ij} \qquad i = 1, 2, \ldots, 64$$

h_i is the number of minor strata selected in the 1977 sample in the i^{th} major stratum also note $h_i \leq H_i$.

m_{1ij} is the total number of mailed responses received from the 1977 mail survey in the $(i,j)^{th}$ minor stratum.

m_{2ij} is the total number of mailed responses received from the 1977 mail survey and which contained an answer of interest in the $(i,j)^{th}$ minor stratum and also including undeliverables.

t_{ij} is the number of telephone calls placed to the nonrespondents to the 1977 survey in the $(i,j)^{th}$ minor stratum.

Y_{1ikj} is the answer received from the k^{th} school in the $(i,j)^{th}$ minor stratum from the mail survey.

Y_{2ijk} is the answer received from the k^{th} school in the $(i,j)^{th}$ minor stratum from the telephone survey.

The estimated total for the i^{th} major stratum is given by:

$$\hat{Y}_i = \frac{n_{i.}}{m_{i.}} \sum_{j=1}^{h_i} \frac{N_{ij}}{n_{ij}} \left[m_{1ij} \sum_{k=1}^{m_{1ij}} \frac{Y_{1ijk}}{m_{2ij}} + (m_{ij}-m_{1ij}) \sum_{k=1}^{t_{ij}} \frac{Y_{2ijk}}{t_{ij}} \right]$$

The estimates for national or other estimates are

$$\hat{Y} = \sum_{i=1}^{64} \hat{Y}_i \quad .$$

Because of the possibility that the number of telephone calls in the minor stratum t_{ij} may be 0 or 1, the estimates of the variance were made by first collapsing all the minor strata into each of the major stratum. These estimates provide a reasonable approximation to the actual sampling variance. The variances estimated by this procedure would be expected to be conservative, since any minor strata effects which exist are incorporated in the variance approximation.

B. Estimates of Variances

For the calculation of the variance estimate, two new quantities are defined as follows:

$$\bar{Y}_{bi} = \frac{\sum_{j=1}^{h_i} \sum_{k=1}^{m_{2ij}} Y_{1ijk} + \sum_{j=1}^{h_i} \sum_{k=1}^{t_{ij}} Y_{2ijk}}{m_{2i.} + t_{i.}}$$

where

$$m_{2i.} = \sum_{j=1}^{h_i} m_{2ij}$$

$$t_{i.} = \sum_{j=1}^{k_i} t_{ij} \quad .$$

That is, $\bar{Y}_{bi}$ is the average for the particular question of interest, including undeliverables and ineligible schools as zero values, for the i^{th} major stratum including both the mail and telephone surveys.

$$\bar{Y}_{ti} = \frac{1}{t_{i.}} \sum_{j=1}^{h_i} \sum_{k=1}^{t_{ij}} Y_{2ijk} \quad .$$

That is, $\bar{Y}_{ti}$ is the average for the particular question of interest for the i^{th} major stratum from the telephone survey.

An estimate of the variance for the i^{th} major stratum is

$$\hat{Var}(\hat{Y}_i) = N_{i.}^2 [\hat{Var}(\bar{Y}_{bi}) + \hat{Var}(\bar{Y}_{ti})] \ ,$$

where,

$$\hat{\text{Var}}(\bar{Y}_{bi}) = \frac{N_{i.} - t_{i.} - m_{1i.}}{N_{i.}(t_{i.} + m_{1i.})} \left[\frac{\sum_{j=1}^{h_i} \sum_{k=1}^{m_{2ij}} (Y_{1ijk} - \bar{Y}_{bi})^2 + \sum_{j=1}^{h_i} \sum_{k=1}^{t_{ij}} (Y_{2ijk} - \bar{Y}_{bi})^2}{m_{2i.} + t_{i.} - 1} \right]$$

and

$$\hat{\text{Var}}(\bar{Y}_{ti}) = \frac{(m_{i.} - m_{2i.})(m_{i.} - m_{2i.} - t_{i.})}{m_{i.}^2 t_{i.} (t_{i.} - 1)} \left[\sum_{j=1}^{h_i} \sum_{k=1}^{t_{ij}} (Y_{2ijk} - \bar{Y}_{ti})^2 \right] .$$

Finally,

$$\hat{\text{Var}}(\hat{Y}) = \sum_{i=1}^{64} \hat{\text{Var}}(\hat{Y}_i) .$$

One major stratum, Region 6, SOC 2, and SES 1 (see Table 4) had only one response. This stratum was not used in the estimates of the variances.

C. Estimates of Ratios (Proportions)

The estimator is of the form,

$$\hat{R} = \frac{\hat{Y}}{\hat{X}}$$

where both $\hat{Y}$ and $\hat{X}$ are separately estimated, as formulated for totals.

D. Estimates of Domains

Calculations are presented for totals or ratios, except that the form of the response variable is

$$Z_{1ijk} = I\, Y_{1ijk}$$

or

$$Z_{2ijk} = I\, Y_{2ijk}$$

where I = 1 if the response is a member of the domain, = 0 otherwise.

V. SUMMARY OF SURVEY RESULTS

The Children's Television Workshop Questionnaire was designed to determine the use made of the series, *The Electric Company* (TEC) in classroom instruction in 1976-77 except as noted in section II B. The questionnaire consists of 12 items, some of which have more than one part (a copy of the questionnaire is included in Appendix A.)

A. Reliability and Validity of the Findings

A total of 1557 principals (total response excluding frame inefficiencies) responded to the questionnaire by telephone or by mail, providing the data on which population estimates were based. These estimates are contained in Tables 6 through 47 of this report. The estimates at the national level had an approximate coefficient of variation of 5 to 7 percent. Approximate 95 percent confidence intervals for the national level estimates are therefore in the order of 10 to 14 percent of the value of the estimates themselves.

Confidence intervals resulting from restrictions of the estimate to a small subset of cases, such as estimates restricted to public schools only, schools having full technical capability or schools within one of the regional or size or SES cells, will in general be larger than those for national level estimates. This is due to the larger sampling variances associated with the reduction in effective sample size (fewer available observations on) the small subsets. The tables prepared for this report present estimates by region, size of community and socio-economic status, aggregated to provide national estimates for various subsets of schools. The variances for these estimates are provided in every case so that the reader can judge the reliability of each estimate.

The list of schools from which the Fall, 1972 sample was drawn was provided by the U. S. Office of Education of schools existing during 1970-71. The survey findings, therefore, apply to schools that were in existence when the list was drawn and later, when they were sampled. New schools are not included unless they replaced older schools that were on the list.

By comparing our national estimate of the number of schools with any grades 1-6 to the 1975-76 national estimate published by the Curriculum Information Center, Summary of School Statistics, we have found the findings reported here to be substantially valid in spite of the above limitations.

B. School Adoption Levels

The Electric Company was being used by 23 percent of the elementary schools in the U. S. within two months of its debut in the Fall of 1971, and was being viewed in school by a greater portion of slow readers than of able readers. Moreover, *The Electric Company* was being used in 45 percent of the schools that were equipped with the technical capabilities to receive the series. In the Spring of 1977, *The Electric Company* was being used by 29 percent of the elementary schools in the United States.

Thirty-six percent of the large city schools were using *The Electric Company* compared to 24 percent of the medium-sized city schools, 33 percent of the small city school and 24 percent of the rural and non-urban area schools.

The precent of users in the poorer or low socio-economic status communities was essentially the same as the percent of users in the not low socio-economic communities, 29 percent.

To give a more complete picture of the show's acceptance by potential users, schools which were technically incapable of viewing *The Electric Company* were removed from the estimates. These schools referred to as "blacked out" either had no TV sets available or had no access to broadcasts. This narrowing of the definition of "potential users" serves to increase successively the estimates of utilization levels. For example, whereas 29 percent of all elementary schools in the U. S. were tuned in, this estimate increased to 35 percent of schools having at least one TV set and 57.4 percent of schools having full technical capabilities. Table 38 presents the findings of this breakdown.

C. School Adoption by Grade Levels by Pupils

Nationally an estimated 2,403,027 pupils in grades one through six were viewing *The Electric Company* as part of their regular 1976-77 school program. A total of 22 percent of the pupils in 1st grade saw the series. This compares with 23 percent of the pupils in 2nd grade, the target grade for which the series was designed. An estimated 14 percent of 3rd graders, 5 percent of 5th graders, 3 percent of 5th graders and 2 percent of 6th graders were viewing the series.

D. Television Viewing in the Schools: 1976-77

The major barrier to utilization of *The Electric Company* was the technical capability to view the series. An estimated 49.1 percent of the schools in the United States were unable to adopt *The Electric Company* because of technical considerations. While 83 percent of the schools had one or more TV sets available for instructional use, 20 percent reported the program is not being shown on a television channel that could be received by the school, 28 percent reported their TV receivers

were not of sufficient quality and/or quantity to make instructional viewing feasible and 26 percent reported the program is not broadcast at a time that permits classroom use. Tables 43 through 47 show the number and percent reporting various reasons for not currently viewing *The Electric Company* for the following subsets of schools:

Table 43 Schools whose pupils are not currently viewing *The Electric Company*.

Table 44 Schools who have used *The Electric Company* on a regular basis in any prior years.

Table 45 School who have not used *The Electric Company* on a regular basis in any prior years.

Table 46 Schools whose pupils are currently viewing any Instructional Television at school as part of their regular program.

Table 47 Schools whose pupils are not currently viewing any Instructional Television at school as part of their regular program.

VI. TABLES PRESENTING 1976-77 FINDINGS

To compute variance estimates, it is necessary that the number of telephone responses received in each minor stratum be greater than one or the variance formulation is undefined. As a result, the variances that can be computed are applicable to estimates which may be somewhat different from those actually being used. The magnitude of the difference depends upon the different "weights" which result from the two collapsing procedures described in Section IV.

The estimates in the following tables which are starred (*) are essentially unbiased estimates. The figure below the starred estimate is the estimate for which a variance can be computed. The third figure in each series is the standard error or the square root of the variance estimate. The approximate 95% confidence interval can be computed by taking twice the standard error. This can then be expressed as a percent of the estimate for which the variance is computed. A measure often used in describing the amount of variation in a population is the coefficient of variation, which is equal to the standard error divided by the estimate for which the variance is computed. Estimates which have a coefficient of variation much greater than 10 percent of the value of the estimate are relatively uninformative.

Table 5
INDEX OF TABLES PRESENTING 1976-77 FINDINGS

Table	Question	Title
6	1	Number of schools containing any grades 1 through 6.
7	2	Number of schools having the technical capability for video taping broadcasts for later classroom instruction.
8	3	Number of television sets currently available for instructional use.
9	4-1	Number of pupils enrolled in 1st grade.
10	4-2	Number of pupils enrolled in 2nd grade.
11	4-3	Number of pupils enrolled in 3rd grade.
12	4-4	Number of pupils enrolled in 4th grade.
13	4-5	Number of pupils enrolled in 5th grade.
14	4-6	Number of pupils enrolled in 6th grade.
15	5	Number of classrooms for grades 1 through 6.
16	6	Number of schools in which any pupils in grades 1 through 6 are currently viewing *The Electric Company* at school as part of their regular program.
17	7-1	Number of pupils in 1st grade viewing *The Electric Company* at school.
18	7-2	Number of pupils in 2nd grade viewing *The Electric Company* at school.
19	7-3	Number of pupils in 3rd grade viewing *The Electric Company* at school.
20	7-4	Number of pupils in 4th grade viewing *The Electric Company* at school.
21	7-5	Number of pupils in 5th grade viewing *The Electric Company* at school.
22	7-6	Number of pupils in 6th grade viewing *The Electric Company* at school.
	8	Number of schools reporting assessments of the type of pupils for whom *The Electric Company* is mose useful for the teaching of basic reading skills.

Table 5. (Continued)

Table	Question	Title
23	8-1	Number of schools reporting *The Electric Company* to be most useful for pupils having great difficulty with reading.
24	8-2	Number of schools reporting *The Electric Comapny* to be most useful for pupils with normal or above average reading skills.
25	8-3	Number of schools reporting *The Electric Company* to be equally useful for all types of pupils.
26	8-4	Number of schools reporting *The Electric Company* to be not very useful for any type of pupil.
	9	Number of school reporting various reasons for not using *The Electric Company*.
27	9-1	Number of schools reporting the program is not being shown on a television channel that can be received by the school.
28	9-2	Number of schools reporting their TV receivers are not of sufficient quality and/or quantity to make instructional viewing feasible.
29	9-3	Number of schools reporting the program is not broadcast at a time that permits classroom use.
30	9-4	Number of schools who believe that television is not very useful for instruction in reading.
31	9-5	Number of schools who consider the content of *The Electric Company* to be inappropriate for their instructional needs.
32	9-6	Number of schools reporting they do not have enough detailed information about the content of the program and how to use it.
33	9-7	Number of schools reporting *The Electric Company* would not be as effective as their regular program.
34	9-8	Number of schools reporting budget limitations have restricted their use of Instructional Television.
35	9-9	Number of schools listing other reasons for not currently viewing *The Electric Company* at school.

Table 5 (Continued)

Table	Question	Title
36	10	Number of schools who have used *The Electric Company* on a regular basis in any prior year.
37	11	Number of schools in which any of the pupils in grades 1 through 6 are currently viewing any Instructional Television at school as part of their regular program.
38		Number and percent of all schools tuned in, tuned out and blacked out.
39		Number and percent of schools not using *The Electric Company* reporting some technical difficulty.
40		Number and percent of schools who are currently using *The Electric Company*, who used the series in previous years or who have never used the series.
41		Of the schools reporting some technical difficulty in Table 39, the number and percent reporting each type of difficulty.
42		Number and percent of schools reporting assessments of the type of pupils for whom *The Electric Company* is most useful for the teaching of basic reading skills.
43		Number and percent of schools whose pupils are not currently viewing *The Electric Company* at school.
44		Number and percent of schools who used *The Electric Company* on a regular basis in any prior year reporting reasons for not currently using.
45		Number and percent of schools who never used *The Electric Company* reporting reasons for not using the series.
46		Number and percent of schools currently viewing any instructional television reporting reasons for not using *The Electric Company*.
47		Number and percent of schools not currently viewing any instructional television as part of their regular program reporting reasons for not using *The Electric Company*.

Table 38

NUMBER AND PERCENT OF ALL SCHOOLS TUNED IN,
TUNED OUT, AND BLACKED OUT AND PERCENT
OF TECHNICALLY CAPABLE SCHOOLS TUNED IN AND TUNED OUT.

	Tuned In		Tuned Out		Blacked Out*
	Percent of All	Percent of Capable	Percent of All	Percent of Capable	Percent of All
United States	29.2% (19,644)	57.4%	21.7% (14,580)	42.6%	49.1% (33,054)

*Blacked out schools are those reporting an incapacitating technical difficulty. (See Table 41)

Table 39

NUMBER AND PERCENT OF SCHOOLS NOT USING
THE ELECTRIC COMPANY
REPORTING SOME TECHNICAL DIFFICULTY** WHICH
RENDERS THE SCHOOL UNABLE TO USE THE SERIES.

	Number	Percent
United States	33,054	49.1
	32,821	
	1,122	

** At least one of the following: zero TV sets available to grades 1 through 6; *The Electric Company* is not being shown on a television channel that can be received; the school's television receivers are not of sufficient quality and/or quantity to make instructional television feasible; the program is not broadcast at a time that permits classroom use.

Table 40

NUMBER AND PERCENT OF SCHOOLS WHO ARE CURRENTLY USING *THE ELECTRIC COMPANY*, WHO USED THE SERIES IN PREVIOUS YEARS, OR WHO HAVE NEVER USED THE SERIES.

		Number	Percent
1.	Currently Using	19644* 19607 972	29.2
2.	Used in Previous Years	7975* 7697 686	11.9
3.	Never Used	39658* 39903 1144	58.9

*Unbiased Estimate.

Table 41

OF THE SCHOOLS REPORTING SOME TECHNICAL DIFFICULTY IN TABLE 39 THE NUMBER AND PERCENT REPORTING EACH TYPE OF DIFFICULTY.**

Type Of Difficulty		Number	Percent
1.	Zero TV sets available to grades 1 through 6.	11220* 11485 826	16.7†
2.	*The Electric Company* is not being shown on a television channel that can be received.	9653* 9373 734	20.4††
3.	The school's television receivers are not of sufficient quantity and/or quality to make instructional television feasible.	13257* 13509 854	28.0††
4.	The program is not broadcast at a time that permits classroom use.	12247* 12103 818	25.9††

* Unbiased Estimates

** Schools were instructed to "circle as many as apply". Therefore, a single school may have circled items 2, 3 and 4. Item 1 was answered independently of items 2, 3 and 4.

† Computed by dividing the estimated number of schools with '0' TV sets by the estimated total number of schools (67,278).

†† Computed by dividing the estimated number answering each item by the estimated number answering this question (47,350).

Table 42

NUMBER AND PERCENT OF SCHOOLS REPORTING ASSESSMENTS OF THE TYPE OF PUPILS FOR WHOM *THE ELECTRIC COMPANY* IS MOST USEFUL FOR THE TEACHING OF BASIC READING SKILLS.

		United States	
		Number	Percent†
1.	Pupils having great difficulty with reading.	3331* 3485 469	17.6
2.	Pupils with normal or above average reading skills.	2793* 2656 430	14.7
3.	Equally useful for all types of pupils.	12673* 12618 870	66.8
4.	Not very useful for any type of pupil.	161* 164 128	.8

*Unbiased Estimates.

†Computed by dividing the estimated number answering each item by the estimated number answering this question (18,958).

Table 43

NUMBER AND PERCENT OF SCHOOLS WHOSE PUPILS ARE NOT CURRENTLY VIEWING *THE ELECTRIC COMPANY* AT SCHOOL

		United States	
		Number	Percent†
1.	The program is not being shown on a television channel that can be received by this school.	9653* 9373 734	20.4
2.	Our TV receivers are not of sufficient quality and/or quantity to make instructional viewing feasible.	13257* 13509 854	28.0
3.	The program is not broadcast at a time that permits classroom use.	12247* 12103 818	25.9
4.	We believe that television is not very useful for instruction in reading.	2238* 2043 380	4.7
5.	We consider the content of *The Electric Company* to be inappropriate for our instructional needs.	3400* 313 4..	7.2
6.	We do not have enough detailed information about the content of the program and how to use it.	12019* 12157 800	25.4
7.	*The Electric Company* would not be as effective as our regular program.	6747* 6855 675	14.3
8.	Budget limitations have restricted our use of INSTRUCTIONAL TELEVISION.	13583* 13787 858	28.7
9.	Other reasons listed by the school.	12999* 13311 894	27.5

*Unbiased Estimates

†Computed by dividing the estimated number answering each item by the estimated number responding to this question. {47,350* / 47,302 / 1,125}

Table 44

NUMBER AND PERCENT OF SCHOOLS WHO USED
THE ELECTRIC COMPANY
ON A REGULAR BASIS IN ANY PRIOR YEAR REPORTING
REASONS FOR NOT CURRENTLY USING.**

		United States	
		Number	Percent†
1.	The program is not being shown on a television channel that can be received by this school.	1073* 738 202	13.5
2.	Our TV receivers are not of sufficient quality and/or quantity to make instructional viewing feasible.	1790* 2046 353	22.5
3.	The program is not broadcast at a time that permits classroom use.	3243* 3042 419	40.8
4.	We believe that television is not very useful for instruction in reading.	254* 247 154	3.2
5.	We consider the content of *The Electric Company* to be inappropriate for our instructional needs.	1019* 751 215	12.8
6.	We do not have enough detailed information about the content of the program and how to use it.	1484* 1309 267	18.7
7.	*The Electric Company* would not be as effective as our regular program.	1036* 1073 277	13.0
8.	Budget limitations have restricted our use of INSTRUCTIONAL TELEVISION.	1793* 1694 310	22.6
9.	Other reasons listed by the school.	1740* 1946 395	21.9

*Unbiased Estimates.

**Questionnaire Question 10 = Yes.

†Does not sum to 100% as principals were instructed to circle as many as apply.
Computed by dividing the estimated number answering each item by the estimated number responding to this question. {7945* / 7667 / 685}

Table 45

NUMBER AND PERCENT OF SCHOOLS WHO NEVER USED
THE ELECTRIC COMPANY
REPORTING REASONS FOR NOT USING THE SERIES*

		United States	
		Number	Percent†
1.	The program is not being shown on a television channel that can be received by this school.	8580* 8635 715	22.0
2.	Our TV receivers are not of sufficient quality and/or quantity to make instructional viewing feasible.	11452* 11446 794	29.4
3.	The program is not broadcast at a time that permits classroom use.	8944* 9008 728	23.0
4.	We believe that television is not very useful for instruction in reading.	1984* 1796 348	5.1
5.	We consider the content of *The Electric Company* to be inappropriate for our instructional needs.	2381* 2381 368	6.1
6.	We do not have enough detailed information about the content of the program and how to use it.	10536* 10849 771	27.1
7.	*The Electric Company* would not be as effective as our regular program.	5711* 5783 632	14.7
8.	Budget limitations have restricted our use of INSTRUCTIONAL TELEVISION.	11776* 12076 814	30.2
9.	Other reasons listed by the school.	11146* 11264 833	28.6

*Unbiased Estimates.

**Questionnaire Question 10 = No.

†Does not sum to 100% as principals were instructed to circle as many as apply. Computed by dividing the estimated number answering each item by the estimated number responding to this question. {38945* / 39172 / 1147}

Table 46

NUMBER AND PERCENT OF SCHOOLS CURRENTLY VIEWING ANY INSTRUCTIONAL TELEVISION REPORTING REASONS FOR NOT CURRENTLY USING *THE ELECTRIC COMPANY***

		United States	
		Number	Percent†
1.	The program is not being shown on a television channel that can be received by this school.	2438* 1974 341	14.7
2.	Our TV receivers are not of sufficient quality and/or quantity to make instructional viewing feasible.	2889* 3076 388	17.4
3.	The program is not broadcast at a time that permits classroom use.	7083* 6882 615	42.7
4.	We believe that television is not very useful for instruction in reading.	518* 527 208	3.1
5.	We consider the content of *The Electric Company* to be inappropriate for our instructional needs.	1988* 1842 322	12.0
6.	We do not have enough detailed information about the content of the program and how to use it.	5569* 5522 527	33.5
7.	*The Electric Company* would not be as effective as our regular program.	2785* 2741 433	16.8
8.	Budget limitations have restricted our use of INSTRUCTIONAL TELEVISION.	3459* 3379 400	20.8
9.	Other reasons listed by the school.	2633* 2876 445	15.9

*Unbiased Estimates

**Questionnaire Question 11 = Yes

†Does not sum to 100% as principals were instructed to circle as many as apply.
Computed by dividing the estimated number answering each item by the estimated number responding to this question. {16605*
16272}

Table 47

NUMBER AND PERCENT OF SCHOOLS NOT CURRENTING VIEWING ANY INSTRUCTIONAL TELEVISION AS PART OF THEIR REGULAR PROGRAM REPORTING REASONS FOR NOT USING *THE ELECTRIC COMPANY***

		United States	
		Number	Percent†
1.	The program is not being shown on a television channel that can be received by this school.	7182* 7366 665	23.7
2.	Our TV receivers are not of sufficient quality and/or quantity to make instructional viewing feasible.	10368* 10432 783	34.2
3.	The program is not broadcast at a time that permits classroom use.	5165* 5221 588	17.0
4.	We believe that television is not very useful for instruction in reading.	1721* 1517 325	5.7
5.	We consider the content of *The Electric Company* to be inappropriate for our instructional needs.	1421* 1290 280	4.7
6.	We do not have enough detailed information about the content of the program and how to use it.	6450* 6636 647	21.3
7.	*The Electric Company* would not be as effective as our regular program.	3963* 4114 542	13.1
8.	Budget limitations have restricted our use of INSTRUCTIONAL TELEVISION.	10125* 10408 787	33.4
9.	Other reasons listed by the school.	10366* 10435 812	34.2

*Unbiased estimates

**Questionnaire Question 11 = No.

†Does not sum to 100% as principals were instructed to circle as many as apply.
Computed by dividing the estimated number answering each item by the estimated number responding to this question.

{30323*
30623
1110}

APPENDIX A

SCHOOL QUESTIONNAIRE

Children's Television Workshop

One Lincoln Plaza / New York, N.Y. 10023 / 212 595-3456

JOAN GANZ COONEY
PRESIDENT

March, 1977

Dear Principal:

On October 25, 1971, the Children's Television Workshop, producers of Sesame Street, inaugurated a new television series called The Electric Company designed for home or school viewing by children between the ages of seven and ten. This program is being carried by the 250 PBS television stations in most areas of the United States.

Please take a few minutes to help us learn about the extent of use of this program in our schools. The questionnaire attached is brief and has been designed to be as convenient as possible.

Please note that it is as important for us to hear from schools which are not using the series as from those which are.

A pre-addressed, stamped envelope is provided to return this questionnaire to the Research Triangle Institute, which is conducting this survey for us.

Your candid answers will be of great value to us in our efforts to help meet the reading needs of American children. Thank you for your assistance.

Sincerely yours,

Joan Ganz Cooney

JGC:ejw
Attachment

CABLE: SESAMEST NEW YORK / TWX 710-581-2543 / RCA 236168

Children's Television Workshop

RETURN TO:

Research Triangle Institute
Post Office Box 12194
Research Triangle Park
North Carolina 27709

1. Does this school contain any grades 1 through 6?

(Circle one.)

Yes . . . . . 1 *(Please complete this questionnaire.)* 67,278
No . . . . . 2 *(Please return this questionnaire. Thank you for your cooperation.)*

Schools with at least 1 TV and Technically capable* 34,224

2. Does this school have the technical capability for videotaping broadcasts for later classroom instruction? 16,164 24.0%

(Circle one.)

Yes 1
No 2

3. How many television sets are currently available for INSTRUCTIONAL USE in this school? _____ TV Sets 303,145

No. with at least 1 TV = 55,984 Estimated avgerage no. 5.4

4. Please indicate each grade that exists in this school and enter the number of pupils enrolled in each grade.

	(Circle as many as apply.)	(Number of pupils enrolled.)
1st GRADE	1	3,634,437
2nd GRADE	2	3,343,805
3rd GRADE	3	3,350,255
4th GRADE	4	3,392,265
5th GRADE	5	3,457,213
6th GRADE	6	2,977,699

5. How many classrooms for grades 1 through 6 does THIS SCHOOL contain? _____ Classrooms 889,855

Estimated average number 13.2

6. Are any of the pupils in grades 1 through 6 in this school currently viewing *The Electric Company* at SCHOOL as part of their regular program?

(Circle one.)

Yes . . . . . 1 *(Please continue with Question 7)* 19,644
No . . . . . 2 *(Please skip to Question 9)* 29.2%

% of schools with at least 1 TV and technically capable* using TEC= 19,644/ 34,224 = 57.4%

7. Please indicate the number of pupils in each grade viewing *The Electric Company* at SCHOOL.

	(Number viewing)	Est. Proportion
1st GRADE	813,509	22.4
2nd GRADE	770,614	23.0
3rd GRADE	482,302	14.4
4th GRADE	165,734	4.9
5th GRADE	101,731	2.9
6th GRADE	69,134	2.3

8. In your opinion, for which types of pupils is *The Electric Company* most useful for the teaching of basic reading skills?

(Circle one.)

a. Pupils having great difficulty with reading 1 3331 17.6%
b. Pupils with normal or above average reading skills 2 2793 14.7%
c. Equally useful for all types of pupils 3 12673 66.8%
d. Not very useful for any type of pupil . . . . . 4 161 .8%

PLEASE SKIP TO ITEM 12.

* Technically capable = School did not answer Q9-a, b or c.

(PLEASE TURN PAGE)

9. Which of the following reasons help to explain why pupils in this school are not currently viewing *The Electric Company* AT SCHOOL? *(PLEASE BE CANDID.)*

(Circle as many as apply.)

			Number	Perce
a.	The program is not being shown on a television channel that can be received by this school	1	9,653	20.
b.	Our TV receivers are not of sufficient quality and/or quantity to make instructional viewing feasible	2	13,257	28.
c.	The program is not broadcast at a time that permits classroom use	3	12,247	25.
d.	We believe that television is not very useful for instruction in reading	4	2,238	4.
e.	We consider the content of *The Electric Company* to be inappropriate for our instructional needs	5	3,400	7.
f.	We do not have enough detailed information about the content of the program and how to use it	6	12,019	25.
g.	*The Electric Company* would not be as effective as our regular program	7	6,747	14.
h.	Budget limitations have restricted our use of INSTRUCTIONAL TELEVISION	8	13,583	28.
i.	Other *(PLEASE SPECIFY)* _____	9	12,999	27.

_____

10. Has *The Electric Company* been used on a regular basis in any prior years?

(Circle one.)

Yes 1
No 2 7975

answering Q10 = 47,590 % answering Q10 = YES = 16.8%

11. Are any of the pupils in grades 1 through 6 in this school currently viewing any INSTRUCTIONAL TELEVISION at SCHOOL as part of their regular program?

(Circle one.)

Yes 1 16,918
No 2

answering Q11 = 47,628 % answering Q11 = YES = 35.5%

12. We would be pleased to receive any comments you may have. _____

_____

_____

_____

_____

_____

_____

_____

PLEASE RETURN THIS QUESTIONNAIRE.

THANK YOU FOR YOUR COOPERATION.

Children's Television Workshop
RESEARCH TRIANGLE INSTITUTE
Post Office Box 12194
Research Triangle Park, N.C. 27709

Children's Television Workshop

Last week we mailed to you a questionnaire. The answers to these questions are important to our assessment of the use of *The Electric Company* as a teaching aid. The information is required both from schools using and not using *The Electric Company*.

If you **have** completed and mailed your questionnaire, thank you. We appreciate your participation in this study.

Your information is critical to the success of this study. If you **haven't** completed your questionnaire, please fill it out and mail it today to:

RESEARCH TRIANGLE INSTITUTE
Post Office Box 12194
Research Triangle Park, N.C. 27709

THANK YOU FOR YOUR COOPERATION